Sustainable development, inclusivity and multilingualism: The challenge

Alfredo M. Ronchi
Politecnico di Milano - EC MEDICI
alfredo.ronchi@polimi.it

Preamble

An inclusive sustainable development represents one of the goals foreseen by the UN 2030 Agenda. The adjective "inclusive" implies the fulfilment of numerous conditions including the potential active participation of cultural and linguistic minorities. It is clear that "development" in current times is mainly based on information communication technologies and it is evident that the "mother tongue" of such technologies is the English/American language. In addition, relevant part of on-line available content and services are delivered in a limited number of languages, as appears on Internet World Stat latest report (June 2017) taking into account the top ten languages used on line the gap between the first and the last is more than eleven times where the first two languages represents more than 45% of the available content. Switching from on line languages to native speakers if we refer to Ethnologue[1] report the first language is Chinese, the native speakers are almost 1.2 billion, Spanish native speakers, second placement, are about 400 million, third English 360 million-odd native speakers, fourth India that has 23 official languages, altogether with Hindi/Urdu chief among them , Arabic is around 250 million native speakers, Portuguese is spoken by 215 million native speakers, 170-odd million Bangladeshis, roughly 170 million Russian native speakers, 130 million native Japanese speakers, and around 100 million Punjabi/Lahnda native speakers. Ethnologue, accordingly with the World Atlas and previous UNESCO IFAP Multilingualism Conferences, reports that nowadays 7099 different languages are spoken around the world, this is a rough data because a third of languages are now endangered, often with less than 1,000 speakers and even down to

[1] Ethnologue web site https://www.ethnologue.com

few units remaining. Meanwhile, just 23 languages account for more than half the world's population.

Top Ten Languages Used in the Web - June 30, 2017 (Number of Internet Users by Language)					
TOP TEN LANGUAGES IN THE INTERNET	Internet Users by Language	Internet Penetration (% Population)	Users Growth in Internet (2000 - 2017)	Internet Users % of World Total (Participation)	World Population for this Language (2017 Estimate)
English	984,703,501	68.6 %	599.6 %	25.3 %	1,434,937,438
Chinese	770,797,306	54.1 %	2,286.1 %	19.8 %	1,425,430,865
Spanish	312,069,111	61.1 %	1,616.4 %	8.0 %	510,380,423
Arabic	184,631,496	43.8 %	7,247.3 %	4.8 %	421,345,425
Portuguese	158,399,082	56.2 %	1,990.8 %	4.1 %	281,603,515
Indonesian / Malaysian	157,580,091	53.4 %	2,650.1 %	4.1 %	295,108,771
Japanese	118,453,595	94.0 %	151.6 %	3.0 %	126,045,211
Russian	109,552,842	76.4 %	3,434.0 %	2.8 %	143,375,006
French	108,014,564	26.6 %	800.2 %	2.8 %	405,644,599
German	84,700,419	89.2 %	207.8 %	2.2 %	94,943,848
TOP 10 LANGUAGES	2,988,902,008	58.2 %	907.2 %	76.9 %	5,138,815,101
Rest of the Languages	896,665,611	37.7 %	1,296.1 %	23.1 %	2,380,213,869
WORLD TOTAL	3,885,567,619	51.7 %	976.4 %	100.0 %	7,519,028,970

(source Internet World Stat – 30 June 2017[2])

If we compare the two stats it is already evident the linguistic gap. Chinese language content and services available on line is increasing as well as the number of Chinese users, on the contrary Indian presence does not cope with native speaker's index as it happens for Punjabi and others. In a similar situation, the key aspect is that languages outside the range of both (spoken & on-line) the first ten are almost absent and related population must refer to other languages in order to access and enjoy content and services. It is worth, as a consequence, to introduce the specific role played by information communications technologies.

[2] http://www.internetworldstats.com/stats7.htm

Information Era

The impact on society due to technological innovation and related processes was, many times, unpredicted and not managed. The identification of adequate policies to maximise benefits and mitigate or eliminate drawbacks, if any, was object of late studies "ex-post" when the potential problems were already on stage. Sometimes the mid and long-term impact was almost unpredictable and it took some time to identify and understand them, think about the printing process or even innovation addressed to different fields such as steam engines[3] or transistors. Similar effects are even more evident if the technological innovation represents not an evolution but a true revolution as it happened with ICTs. The inception of the process didn't disclose the real potential of this technology, we assisted to the rearrangement of some activities, no more assistants typing letters, creation of digital archives, digital accounting systems, bar code and more. The turning point was the diffusion of "personal" computers and the Internet. These two "actors" turned an evolution of the "life style" into a revolution. Computing was no more patrimony of nerds or hackers, it became a home appliance like TV or radio sets. Instant communication and "net-casting" widened the horizons from obvious services to a universe of opportunities unleashing the creativity of citizens. We are still in this process and someone must look in the crystal ball and provide a clear vision about where we are going and how this "travel" will impact our life, this "must" motivates the members of the UNESCO IFAP Conference.

Early impacts

As soon as the digital technology started to spread together with mobile phones (even not so "smart" at that time) we assisted to the birth of new opportunities and significant reshaping of some activities. It was enough to be able to send and receive SMS or phone calls thanks to mobile phones to enable a different approach and organisation: painters, plumbers, electrician as well as limousine drivers, to mention few of them, didn't need any more to have a secretary or to come back to their workshops to interact with customers.

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[3] James Watt devoted his studies to the refinement of Newcomen water pumps for coal mines, William Shockley, Walter Brattain and John Bardeen on December 1947 invented a device addressed to fight deafness.

In 1993, in the framework Microsoft / IBM agreement for the development of OS2, ideally the powerful descendent of MS DOS, Microsoft released OS2 version 3. Version 3 was the first version of the new operating system "Windows NT[4]" equipped with Explorer 1.0 and HTTP server v098 the latest two representing the basic toolkit to approach Internet technology. In 1994 Jim Clark and Mark Andreessen launched Netscape Navigator, an additional competitor of NCSA Mosaic[5], in 1995 Microsoft decided that it was already time to revolutionize the life style of citizens launching the motto "Where do you want to go today?" coupled with the rhythm of the Rolling Stone's song "Start me up" and, last but more relevant, "Windows 95" operating system. This lead to an increased interest in Internet technology both on the side of Telcos[6] and other software market leaders.

Since that time computers become a home appliance no more a ICT cryptic device. Soon citizens discovered chat rooms, email, and search engines. The "digital citizenship" revolution was later on sealed by the introduction of the social web, smart phones, and tablets.

A view on the future

Computers have been around for about half a century and their social effects have been described under many headings. The accelerating pace of innovation or simply technological updates suggest to improve the analysis of the future shape of society in its multi-cultural dimension. The present paper approaches the analysis of the relations between a multicultural / multilingual society and "inclusive" sustainable development from the standpoint of digital technologies. The word "inclusive" is outlined to extend the usual motto, development has to be not only "sustainable", economically, environmentally, ethically, but even inclusive. This joining another well-known motto "No one will be left behind". The additional "adjective" opens a wide scenario, it

[4] Developing team lead by Dave Cutler, the father of VMS. There is joke about the name of the new operating system, following the idea inaugurated by Kubrik's "2001 Space Odyssey" with the mainframe computer called HAL 9000 incrementing each letter one step from IBM, Cutler suggested the name MNT as a follow up of VMS.

[5] MOSAIC, developed by Eric Bina and Marc Andreessen at the National Center for Supercomputing Application (NCSA) was the first browser publicly available since April 1993

[6] Telecommunication companies

includes elderly and handicapped people, digital migrants, economically / politically[7] and socially "divided", "minoritized" cultures and more.

The resolution adopted by the United Nations General Assembly on 25 September 2015[8] entitled "*Transforming our world: the 2030 Agenda for Sustainable Development*" states at paragraph 36:

"*We pledge to foster intercultural understanding, tolerance, mutual respect and an ethic of global citizenship and shared responsibility. We acknowledge the natural and cultural diversity of the world and recognize that all cultures and civilizations can contribute to, and are crucial enablers of, sustainable development*."

Moreover, describing in detail, the achievements due to "*Goal 4 - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*", at sub paragraph 4.7:

"*By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development*".

"*Goal 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*" at paragraph 8.9 the agenda takes into account tourism: "*By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products*" and again on tourism "*Goal 12 - Ensure sustainable consumption and production patterns*" at paragraph "b": "*Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products*". This quick overview on some statements included in the UN Agenda 2030 does not represent the whole reference to inclusive sustainable development in the Agenda or in numerous other documents due to international bodies, anyway they are enough to underline the today's relevance of this set of words.

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[7] Countries and citizens cut out from developement trends because of geo-political reasons

[8] Resolution N1529189

2030 Agenda - Sustainable development goals

The fruitful series of UNESCO IFAP International Conferences dedicated to multilingualism in the cyberspace confirmed the cultural and "empowering" role of on line content and underlined the need to ensure an adequate presence of "minoritized" languages in the cyber space. The Final Recommendations for the Action Plan of UNESCO's World Atlas of Languages issued as a follow up of the International Expert Meeting on Improving Access to Multilingual Cyberspace held at the UNESCO Headquarters in Paris on 28 – 29 October 2014, among other direct references to the topic, states: "*UNESCO is convinced that linguistic diversity and multilingualism have a key role to play in fostering pluralistic, equitable, open and inclusive knowledge societies. In this regard, the Organization supports the safeguarding all languages and their inclusion in the digital world – in particular those which are not represented online – and the creation and dissemination of local content on the Internet and mass communication channels.*"

The same recommendation recalls that "*The Recommendation Concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace, adopted by UNESCO's General Conference in 2003, is the only normative instrument at the international level, focusing on the promotion of these priorities.*"

As participants to the Global Expert Meeting we think that mayor part of us will agree on the fact that digital technology changed and improved significantly since the time of the first report on multilingualism in cyber space even if this report doesn't date back

too many years. During this period of time the impact of cyber technology on society become more evident as well as the importance to be "digitally included[9]".

We assume that nowadays digital technology pervades mayor part of the world; mobile position aware devices, social media and apps are spread everywhere. eGovernment and eHealth force citizens to interact with Institutions via the Internet, access and digital skills make the difference. Society is changing under the influence of advanced information technology; we face fundamental transformations in social organisation and structure, as it will be outlined in the next paragraphs. Such a change is much more evident in the recent period of time. This even because young citizens are changing and the change is not smooth it's a real discontinuity, young think different!

The shift

We are witnessing relevant changes due both to technological enhancements and modification of user behaviour, requirements/expectations. Globalisation and the digital revolution activated a chain reaction that revolutionize everyday life and economy producing a high impact on society. The "Pandora vase" is open, no more space and time gaps, information communication technologies provided a fundamental contribution to unify and globalise the world.

In a similar scenario, cultural and linguistic identities represent a bottleneck or constraint to the de facto evolution of the "globalised" system.

The intrinsic ontological essence of cyber, "virtuality", is prevailing, so many traditional long living concepts are disappearing: original v/s copy, authenticity, ownership, etc. Many times, citizens are exploring a "terra incognita" both on the legal side and impact on everyday life.

A typical example of both aspects is represented by employment, the foreseen initial "boom" of new positions cyber-related is vanishing, as much as cyber technologies develop as much working positions disappear it is not the same evolution due to the "industrial revolution": from manpower to brainpower. Actually, it seems that the trend is from brainpower to unemployment. ICTs are stimulating changes in the way most

[9] A number of initiatives have been activated such as "Empowering people … " or "Capacity building …" to inform and train citizens.

people earn their incomes; altering the balance between our roles as consumer and producers; changing the way we educate succeeding generation and train ourselves; changing the fruition of world's cultural heritage; transforming the delivery of health care; altering the way we govern ourselves; changing the way we form and manage communities; altering the way we obtain and communicate information; contributing to bridge some cultural or physical gaps; and modifying pattern of activity among the elderly, last but not least potentially contributing to a green world. This is not a complete list of changes, but highlights some of the most prominent and important effects of ICTs on our society. How can we cope these aspects with an inclusive sustainable development process? There are still opportunities for small groups or single actors representing minorities?

On the legal side, that is in general a follower of innovation processes, a galaxy of directives and regulations has been generated, and are still under construction, to define new financial and fiscal rules, to protect from cybercrimes, to fairly manage the relation between workers and innovation processes, to create a legal framework for robots and artificial intelligence, this to mention some of the most relevant.

Economy has been profoundly changed, some huge market players such as B&B[10] or UBER[11] practically do not own any of the assets they manage but they own the platform to provide such services and this is the main asset.

An additional actual trend is about key information, user profiles, and big data analytics trading; Amazon and digital malls use to have a core business different from the appearing one as it was for Mc Donald's as a real estate corporation or low-cost airlines. In the nineties, some companies use to consider customers thousands of users accessing their services totally for free, this was a significant semantic shift that opened the way to innovative market models. They do not earn from the official business but selling selected customer's profiles to other business companies. Some of them do not earn any money, on the contrary, they lose money providing services or goods for a cheaper price with the aim to increase the number of "customers" thus increasing the value of the

[10] Bed and breakfast web site www.bed-and-breakfast.com/B&B

[11] UBER car service http://uber.com

company and shares. These are simply some of the new horizons of economy and market.

Another relevant shift, empowered by massive use of digital technologies, is the one from goods to services. eServices represent the new opportunity to deliver services in the Internet/Information Society era. The shift from traditional way to deliver services to e-Services produces relevant changes both on the delivery side and the citizen side. The number and quality of services potentially deliverable through "information highways" is almost unlimited. They require a deep reshaping of service provision chain starting from the owners of the information that many times are aggregated in order to generate a "service". Access to technologies and eSkills[12] make the difference and discriminate.

Services and more

The service sector or service economy is actually one of the most prosperous sectors, it is one of the few sectors contributing, as much as possible, to balance the working positions cancelled by innovation. Since the origin of commerce and trade we are used to consider goods, physical objects to be owned, stored and delivered, services and even more eServices completely change the paradigm.

It is useful to outline some of the basic attributes that characterise services, the most significant are: perishability, inseparability, intangibility, and invariability. Let's consider the typical definition of each characteristic.

Perishability: subject to decay, ruin, or destruction. It is one of the four fundamental characteristics of a service together with inseparability, intangibility, and variability. It refers to the fact that, in general, services cannot be produced and stockpiled before consumption: they exist only at the time of their production.

When someone misses an appointment that time can never be recaptured. When hotel rooms are empty and airplane tickets go unsold, the inherent value vanishes. Perishability also affects performance, as balancing supply and demand can be difficult. Demand may be seasonal, time sensitive, or crisis driven. When demand fluctuates, it

[12] Specific skills in the field of digital technologies

can be a challenge to maintain high performance levels. In IT services, performance could be tested during peak times of disaster recovery, or massive server outages. While product marketers handle supply/demand issues through production scheduling and inventory management, services marketers don't have that advantage.

Inseparability: The production of the services can't be separated from its consumption. For example, the production and consumption of a medical exam happen together, as do many consulting services and IT maintenance contracts. This leads to two important factors. First, the customer is, essentially, "in the factory," watching production all along the way. It is very important for a service provider or consultant to carefully manage the "production process" as the customer is able to observe it in action and make judgments about quality and value. Second, the customer often expects the service to be provided in a specific way or by a specific individual—and that can pose challenges in assigning staff, managing the process, and ensuring the frontline people display the appropriate knowledge, attitude, and appearance when delivering the service.

Intangibility: Services are not physical and cannot be "possessed". Because they can't be seen, touched, or made tangible in some way, assessing their quality and value is difficult. A services customer will never know how good the service is until after he receives it. In some cases, it actually may be months or years before a trigger event occurs to activate the service, at which time the customer hopes to experience the promised service quality (e.g., an IT crisis triggers service, or an accident initiates an insurance claim). This can be unsettling for the customer; whose response is to look for tangible signals about the service process and quality prior to purchase to reduce uncertainty and reservation.

Variability: Sometimes called "heterogeneity," services quality and consistency are subject to great variability because they are often delivered by people, and human behaviour is difficult to control. Personal performance and quality can vary by time of day (people get tired), time of month or year (e.g. due to multiple deadlines), workload, experience, attitude, knowledge, and other factors. Maintaining customer trust during lapses (which will happen) is critical. Also, variability is why it can be risky to have one

person make the sale and establish the relationship, and another deliver the service. The original contact person is the one who reduced risk for the customer; when someone else delivers the service, the customer may become agitated or wary.

The combined effect of such trends is deeply influencing sustainable development and the availability of multilingual content and services.

Trends and treats

Dealing with eServices and inclusive sustainable development we immediately refer to the long list of e-"something": eGovernament, eCommerce, eHealth, eLearning, eDemocracy, and more. In addition, if we look back to the "physical" economy based on "goods" the new domain of "makers[13]" is now approaching even this sector and for new generation cars, like Tesla, enjoy periodical service, options and updates directly uploaded to the car wherever it is located. This reminds a well-known comic strip where a mother tells to the son "No, I didn't download you, I gave birth to you!"

Crypto currencies like Bitcoins, Ethereum, Litecoin grown up both in value and number, today we have more than one thousand different crypto currencies some of them gaining more than 30% of the value in one week time span. Block chains, initially coupled with crypto currencies, are now spread in different fields ensuring consistency and trust in different sectors. A specific branch of technology has been ad hoc created: FinTech; this technology aims to innovate and compete with traditional financial methods in the delivery of financial services, so it might happen that the classical capitols of finance will be "virtualised".

New economy is often based on good ideas taking advantage from technologies seen as an enabler of unthinkable solutions in the recent past. Let's take into account, as already mentioned, global businesses involving valuable assets having no assets at all or global businesses based on hidden core businesses (e.g. Amazon, EasyJet, etc.). Traditional post-industrial revolution businesses are evolving following the new trend based on finance, manufacturing companies are turning to financial institutions: you don't buy a car, you pay a loan that offers as a "fringe benefit" a car. Car advertisement does not

[13] Chris Anderson (2012), Makers: The New Industrial Revolution, ISBN 978-0307720955, Crown Business

promote the price but the loan rate. Innovation produces a significant impact on economic models, new "models" and scenarios are on stage in the field of economy: circular economy, sharing economy, energy economy, information economy, consumer economy and more.

Inclusive sustainable development: conclusions

The previous paragraphs provide a quick overview on the general framework and its background, within this framework we may depict how to ensure inclusive sustainable development in a multicultural and multilinguistic world. Inclusive sustainable development must firstly satisfy human basic needs as part of the 2030 Agenda goals; a tentative list of them encompasses: safety and security, food and water, housing, health, freedom and dignity this is complemented then by freedom of expression, privacy, and more. Mayor part of such needs is nowadays directly or indirectly "influenced" by ICTs. Recalling the UNESCO IFAP 2015 Conference final document "Yakutsk Declaration on Linguistic and Cultural Diversity in Cyberspace": "*Languages are stores of a rich and vast amount of human heritage and life- crucial knowledge, i.e. the knowledge necessary for health, well-being, and participation in the local and worldwide community and economy, as well as necessary instruments for social life, the expression and dissemination of social and cultural traditions, self-identification and preservation of human dignity of their speakers, whether these are native to the territory or migrants*."

Of course, language technologies may help[14] but as already expressed access to technologies and eSkills make the difference and discriminate; in addition, apart from the relevant problem related to equitable and economically viable access to technological resources we face the absence of content and services directly usable in mayor part of spoken languages as appears from the stats, we may call this "language gap" a bi-directional gap that on the reverse hides and jeopardises "minoritized" Cultures.

[14] Joseph Mariani (2015), How Language Technologies Can Facilitate Multilingualism, proceedings "Linguistic and Cultural Diversity in Cyberspace", pages 48,60, ISBN 978-5-91515-063-0, Interregional Library Cooperation Centre.